SYSTEM AND METHOD FOR CREATING, MANAGING AND EXECUTING A MULTI-ELEMENT PROCESS FOR GENERATING A COMPLEX ENTITY

5   Technical Field

The present invention relates to a system and method for creating, managing and executing a multi-element process for generating a complex entity. More particularly, though not exclusively, the present invention relates to a document creation process such as that used

10   in newsrooms and published media creation organisations.

Background Art

Newsrooms have become increasingly complex over the past twenty years. In response to

15   changing market conditions and the advent of what some call the "Information Age", many of today's news organisations are implementing convergence strategies. That is, news organisations are converging previously distinct news operations and delivering multimedia news packages to audiences through a variety of distribution platforms such as the Internet, radio, television, print, and wireless. Advocates of this new multimedia

20   information age argue that the synergies of convergence lead to better ways of serving the public interest, greater financial returns for individual news (and other media) organisations, and innovative ways of gathering news stories. However, there is a challenge in avoiding chaos in the converged news operations while implementing rapid changes to newsroom workflows and culture.

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Newsroom management software is a commonplace feature in today's newsrooms. Such software may be divided into the following five main categories: 1) production applications (i.e. those dealing with pagination for newspapers and other print media); 2) program line-up and diffusion for broadcasting; 3) content management applications (i.e. those that track

30   the flow of digital content throughout the system, and where the content is usually specific to a particular media format); 4) archiving systems; and 5) pre-production or workflow management.

Many such software systems exist. One such prior art system is NxNews which is a newsroom management system based on Lotus Notes. NxNews provides newsroom workflow management with integrated user management. The system is Web browser enabled and remotely accessible. Another prior art system is Hermes (from Unisys) which manages media content, presentation and workflow. Another prior art system is EidosMedia Methode, which provides integrated workflow management and XML-based publishing systems. The product allows cross-channel publishing, feeding tailored content for Web servers, print systems and broadcast TV. My NewsEngin (from NewsEngin Inc.) provides newsrooms with customisable workflow, from inception to publication, for all editorial material (stories, photos and graphics). It provides also a destination-neutral database from which newsrooms can publish directly to newsprint, the Web or hand-held devices. A Source Tracker that allows users to share selected sources across the newsroom is available. GN3 (by Tera) is an example of another prior art system. This system is based on a data-centric design: data are accessed through a central database which is accessible remotely. Another system is CCI Newsgate which focuses on optimising the content creation and management process throughout the entire publishing life cycle.

The above systems all provide editorial content management solutions for newsrooms, but all have a number of disadvantages. Some of them, as NxNews or GN3, have been designed as bi-media tools for handling only print and Web media but forsaking television, radio and wireless media. They cannot be considered as total cross-media systems as they deal with only a subset of the functions carried out in a converged newsroom.

The Hermes, Methode or Newsgate systems, on the other hand, are difficult, expensive and time consuming to implement and integrate in a newsroom. They are generally suitable for only a specific segment of the media industry, that is the major media groups which have the resources to support such systems in terms of finance, time and personnel. Most smaller media organisations are feeling the effects of a fall in advertising revenues and are therefore looking for inexpensive and ready-to-use systems. Products as Hermes, Methode and Newsgate take months to install and years to show significant cost reduction. A company like NewsEngin provides an interesting, flexible system. Yet, the system has a

less than ideal user interface, and provides what is thought by some to be an unfriendly working environment.

An aim of the present invention is to provide a media-independent system for use in newsrooms that substantially overcomes the disadvantages mentioned above. Another aim of the present invention is to provide a cost-effective system that is able to manage all media content, and which is easily configurable for different styles of workflow.

Summary of the Invention

According to a first aspect of the present invention there is provided a system for creating, managing and executing a multi-element process for generating a complex entity, system comprising: specifying means for specifying each element of the process and implementation tasks needed to complete that element of the process; assigning means for assigning the tasks to different processors for execution; notification means for notifying each different processor of its task(s) for execution; task result receiving means for receiving a task result of each executed task from each processor; a data store for storing each task result as an asset for use in implementing the elements of the process; construction means for constructing the assets into an element result for each element of the process; approval means for obtaining approval of each of the element results; and compilation means for compiling the approved element results into the desired complex entity; wherein the system further comprises: updating means for updating a management view of the multi-element process from actions carried out by the system; and a graphical user interface (GUI) for displaying the management view of the multi-element process at different times along its progression from creation to completion.

Preferably, the multi-element process is a document creation process. Most preferably, the document is a multi-media document and comprises at least two of the following group: text information, an image, a graphical representation, audio information or video information. The document may comprise a "story" which may subsequently be published across any medium such as radio, television, wireless, print or the Web.

The present invention, which is embodied in a product called Control Tower, provides a significant advantage over prior art systems in that it is a media-independent system. That is, it may be used to produce documents (i.e. stories) for outlets such as newspapers, magazines, television stations, or on-line/Web news providers, etc. It is also easily

5   configurable so that it may be used in different organisations which have different working practices.

A processor may be a journalist, editor, administrator, newsroom manager, or any other user of the system.

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Control Tower offers a complete 'newsroom resource management' system for streamlining and organising editorial production. It allows management of both human resources and content production. It also facilitates information flow between newsroom teams, enables multiple media distribution scheduling, and enhances personal time

15   management. This helps facilitate the move into cross media operations, but does not exclude mono-media groups that are looking at improving newsroom practices.

Control Tower focuses on a part of the editorial processes ignored by most other newsroom systems: story development and resource management (i.e. planning and scheduling). The

20   Control Tower GUI is not only user-friendly and intuitive to use, but is also configurable to provide flexible and customisable workflow to adapt to the needs of different media organisations.

Control Tower has been designed to mirror the traditional editorial process: gathering and

25   organising story ideas, planning the editorial output for the various outlets and issues, assigning content preparation to appropriate journalists, and tracking deadlines, collecting and reviewing the finished raw story material.

Control Tower improves collaboration between different newsroom teams, facilitates and

30   co-ordinates cross-media publishing efforts, and speeds up newsroom efficiency by centralising essential information in the data store.

In comparison to other editorial systems, Control Tower is positioned earlier in the editorial chain and provides planning, workflow management, and resource overviews for a variety of media formats. Control Tower is a totally media independent, inexpensive and a ready to use solution, built into an intuitive and user-friendly graphical user interface.

5   Control Tower provides a "media neutral" platform that allows editors to plan and build stories in any content format. Unlike other systems where finished products (whether a film segment, photo, or text) need to be managed directly in the system, Control Tower tracks files stored in the data store and supports any type of file extension.

10   Control Tower breaks newsrooms down into basic, desk-level (i.e. departmental) units organised not around media type but around subject area (e.g. News, politics, etc). In addition, Control Tower operates independently of media-specific production systems and thus can track the flow of information throughout the newsroom in any content format. Where the news industry has tended to separate different media formats as distinctly

15   different professions (working for a newspaper is remarkably different to working for a television station, for instance), Control Tower helps to bridge these divides and help newsrooms truly "converge" while working more efficiently.

The system preferably further comprises task status means for assigning a status to each

20   specified task, and wherein the GUI is arranged to display a representation of the status of each specified task. This feature enables an editor, for example, to be in control of the tasks assigned to each of the different processors as the status of each task is displayed by the GUI.

25   Preferably the system further comprises offer means for offering the specified tasks for selection by different processors, and notification receiving means for receiving notification of the selection of a task by one of the different processors, wherein the task status means is arranged to assign an acceptance status to the selected task. The notification means may be arranged to confirm to the processor its selected task for execution.

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The notification means may be further arranged to receive acceptance or rejection of a task by a notified processor, and wherein the task status means is arranged to assign an

acceptance or rejection status to the specified task depending on whether the task has been accepted or rejected by the notified processor.

Preferably the task status means is arranged to assign a new status to a task after the task has been specified and prior to its being assigned to a processor for execution. The task status means is preferably responsive to the task result receiving means and is arranged to assign a completed status to an executed task on receipt of its corresponding task result.

The system may further comprises task cancellation means for cancelling a task, and wherein the task status means is arranged to assign a cancelled status to a task if it is cancelled.

Preferably the system further comprises element status means for assigning a status to each specified element of the process, and the GUI may thus be arranged to display a representation of the status of each specified element.

The assigning means is preferably arranged to assign an element to a processor for management of the element, and the element status means may be arranged to indicate whether or not the element has been assigned to a processor.

The element status means is preferably arranged to indicate that an element result has been approved. Preferably the approval means is also arranged to obtain approval of each element and its associated implementation tasks. The element status means may be arranged to indicate approval of a specified element and its associated implementation tasks.

The system may also comprise element amendment means for amending an approved element result, and the element status means may be arranged to indicate that an approved element result has been amended. The system may further comprise element cancellation means for cancelling an element, and the element status means may be arranged to indicate that an element has been cancelled.

Automatic updates of editorial output and the progress of assigned stories (and tasks etc) provide better co-ordination of the newsroom's functions and allow users to act at critical points; Control Tower's truly unique cross-media viewpoint allows the sharing of story information between departments within a newsroom, or even across several operations.

5   Scheduling decisions can be made across a number of different media outlets, programs and editions thus easing the transition into expanded multimedia operations.

Preferably the notification means is arranged to send data messages via a telecommunications network such as the Internet, a WAN or a LAN. Most preferably the

10.   data messages comprise one of the group including: an email, an instant message, an SMS text message and an MMS message.

Preferably the notification means is further arranged to assign a priority to a message (such as low, medium or high), and to select the type of message to be sent depending on the

15   assigned priority.

The notification means is preferably further arranged to send a prompt message to the assigned processor(s) upon change of status of a task and/or an element.

20   The notification means may be further arranged to send a message to a processor upon assignment of a task for execution by that processor, the message including a link to details of the specified task. The link may comprise a URL.

The notification means may be further arranged to send a message to a processor upon

25   assignment of an element for execution by that processor.

Control Tower provides a variety of alert and notification options to keep everyone in the newsroom and out in the field who is involved with a story informed and up to date as to the status of the story.

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Preferably the system further comprises access means for specifying user permissions for accessing and amending an element, a task and/or an asset.

Preferably the specifying means is arranged to enable selection of an existing asset from the data store for use in specifying at least part of an element. This enables re-use of data by any authorised user, and reduces the need for the collection/generation of data that has already been produced.

The data store is conveniently arranged to store processor information relating to the different processors for use by the assigning means and the notification means. The data store may be further arranged to store resource information relating to a resource available to the processors for executing a task.

The centralisation of information, such as editorial contacts/new sources/journalists avoids duplication of data entry and allows the newsroom to generate powerful knowledge assets useful in creating future tasks.

Preferably the processor information comprises the availability of a processor to execute a task, and the assigning means preferably further comprises availability receiving means arranged to receive the availability of a processor for executing a task. Preferably the resource information comprises the availability of the resource for executing a task, and the system preferably further comprises resource input means for receiving the availability of a resource for use by a processor in executing a task.

The assigning means may further comprise interrogation means for interrogating the processor information to identify processors which are available to execute a task.

The interrogation means may be arranged to book a resource for use by a processor in executing the task if the resource is available.

Preferably GUI is user configurable and comprises means for specifying what is to be displayed in the management view.

The system is advantageously arranged to handle a plurality of multi-element processes, and the GUI is preferably arranged to display the management view of each of the plurality of multi-element processes simultaneously.

5   The system may further comprise scheduling means for specifying the time and/or date of completion of the multi-element process or elements thereof. Control Tower provides tracking of deadlines to improve response time and speedup editorial decision-making in the newsroom.

10 . In addition, Control Tower provides time management features to organise staff work schedules, track vacation and holiday time, and track assignment dispatches. Personnel activity overviews increase editors' awareness of staff workload and of potential bottlenecks ensuring operations run at peak performance.

15   The system preferably also comprises proposal means for generating a general request for a complex entity creation process, and making that request available to a plurality of users. Preferably the proposal means is arranged to receive one or more specific responses to the general request, to present the one or more responses to a user for selection via the GUI, and to use the selected response as the multi-element process.

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       Preferably the GUI is arranged to display the created complex entity. The GUI may further be arranged to display list- and/or calendar-style management views to give users access to key information about the different stages of the process.

25   Control Tower acts as the "command and control" centre of the newsroom from which users may manage personal tasks, share and view information with/from other departments and media outlets, and organise upcoming coverage and shared resources (such as equipment and personnel requirements). It also facilitates greater communication between different newsroom teams through collaborative features such displaying details of all
30   Stories in a single place, online conferences, and a messaging function. Additionally, Control Tower centralises all information – assignments, files, team members, messages, sources – related to one story to organise story development in a "project". Furthermore, it

incorporates personnel management tools for administering staff schedules, holidays, sick days and overtime as well as management reports on user activity.

The system may further comprise categorising means for defining categories for elements
5   (and any other parts) of the process. This allows an organisation to define its own categories and to tailor workflow and data classification. A category is any grouping of objects around which it is desired to organise information. For example, a story category has been specified in Control Tower as the complex entity, but in an area such as production planning, the process could be the creation, assembly and production of parts
10   for assembling, for instance a vehicle. A factory using the system of the present invention would then be able to define its own categories such as car, wing, build chassis, order engine parts, etc.

The categorising means may be managed by an administrator or administration department,
15   and may be provided in Control Tower by a highly configurable client administration module. Any customer-specific newsroom structure can be reproduced in this client administration module. This unique back-end allows customers to tailor the Control Tower system to suit their exact organisational requirements. Configurable parts of Control Tower include: the naming and creation of programmes and editions, newsroom department
20   structures, auto-archiving, time zone, categories and fields to enable classification of information, and meta-data for specifying files/content.

According to a second aspect of the present invention there is provided a method of creating, managing and executing a multi-element process for generating a complex entity,
25   the method comprising: specifying each element of the process and implementation tasks needed to complete that element of the process; assigning the tasks to different processors for execution; notifying each different processor of its task(s) for execution; receiving a task result of each executed task from each processor; storing each task result as an asset for use in implementing the elements of the process; constructing the assets into an element
30   result for each element of the process; obtaining approval of each of the element results; compiling the approved element results into the desired complex entity; updating a management view of the multi-element process from actions carried out by the system; and

displaying the management view of the multi-element process at different times along its progression from creation to completion.

Preferably the method comprises the further steps of: offering a task for selection by a processor; receiving notification of the selection of the task by the processor; and assigning an acceptance status to the selected task.

Preferably the notifying step comprises confirming to the processor its task for execution.

The method may also include the further steps of: receiving acceptance or rejection of a task by a processor, and assigning a status to the task according to whether it has been accepted or rejected.

According to another aspect of the present invention, there is provided a computer program comprising instructions for causing a computer to implement the above system and method. It is to be appreciated that the computer program may be embodied on a recording medium or on an electrical carrier signal.

Brief Description of Drawings

Preferred embodiments of the present invention will be described, by way example only, with reference to the accompanying drawings, in which:-

Figure 1 is a diagram of a client-server system suitable for implementing preferred embodiments of the present invention;

Figure 2 is a schematic representation of the organisation of information in Control Tower according to the present invention;

Figure 3a is a flow diagram showing the steps involved in a method of managing the production of a story using Control Tower according to a first embodiment of the present invention;

Figure 3b is a flow diagram showing the additional steps involved in the method of managing the production of a story using Control Tower according to a second embodiment of the present invention;

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Figure 4 is a schematic representation of the organisation of the Control Tower modules, according to the present invention;

Figure 5 is a screenshot showing the home page of the first Control Tower graphical user interface (GUI);

Figure 6 is a screenshot showing the main Story page of the first Control Tower GUI which displays information relating to stories;

15   Figure 7 is a screenshot showing the Add Story page of the first Control Tower GUI;

Figures 8a and 8b are screenshots showing the View Story page of the first Control Tower GUI;

20   Figure 9 is a screenshot showing the Edit Story page of the first Control Tower GUI;

Figure 10a is a screenshot showing how outlet details may be amended from the story page of Figure 6;

25   Figure 10b is a screenshot showing a pop up calendar which may be displayed from the story page of Figure 6;

Figure 11 is a screenshot showing the choose users role page of the first Control Tower GUI;

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Figure 12 is a screenshot showing the set users page of the first Control Tower GUI;

Figures 13a, 13b and 13c are screenshots showing the view element page of the first Control Tower GUI;

Figure 14 is a screenshot showing the edit element page of the first Control Tower GUI;

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Figure 15 is a screenshot showing the add element page of the first Control Tower GUI;

Figure 16 is a screenshot showing the view asset page of the first Control Tower GUI;

10 Figure 17 is a screenshot is a view of the asset of Figure 16;

Figure 18 is a screenshot of the amend asset page of the first Control Tower GUI;

Figures 19a, 19b and 19c are screenshots of the add asset page of the first Control Tower

15 GUI;

Figure 20 is a screenshot of the main assets page of the first Control Tower GUI;

Figures 21a and 21b are screenshots of the view task page of the first GUI;

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Figures 22a and 22b are screenshots of the add task page of the first Control Tower GUI;

Figure 23 is a screenshot of the add existing task page of the first Control Tower GUI;

25 Figure 24 is a screenshot of the main elements page of the first Control Tower GUI;

Figure 25 is a screenshot of the view element page of the first Control Tower GUI;

Figure 26a is a screenshot of a response to a call for a proposal;

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Figure 26b is a screenshot showing the details of the person who submitted the response of Figure 26a;

Figures 27a and 27b are screenshots showing the main tasks page of the first Control Tower GUI;

5   Figure 28 is a schematic representation of a freelance and rights management module;

Figures 29a and 29b are screenshots showing the main assets page of the first Control Tower GUI;

10   Figure 30 is a screenshot showing the message settings page of the first Control Tower GUI;

Figures 31a to 31d are screenshots showing the users page of the first Control Tower GUI;

15   Figure 32 is a screenshot showing the add rights page of the first Control Tower GUI;

Figure 33 is a screenshot showing the user groups page of the first Control Tower GUI;

Figure 34 is a screenshot showing the departments page of the first Control Tower GUI;

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Figure 35 is a screenshot showing the newsrooms page of the first Control Tower GUI;

Figure 36 is a screenshot showing the outlets page of the first Control Tower GUI;

25   Figure 37a is a screenshot of the roles page of the first Control Tower GUI;

Figure 37b is a screenshot of the view notifications page of the first Control Tower GUI;

Figure 37c is a screenshot of the edit notifications page of the first Control Tower GUI;

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Figure 37d is a screenshot of the add notifications page of the first Control Tower GUI;

Figures 38a and 38b are screenshots of the main agenda page of the second Control Tower GUI;

Figure 39 is a screenshot of the main events page of the second Control Tower GUI;

Figure 40 is a screenshot of the main assignments page of the second Control Tower GUI;

Figure 41 is a screenshot of the main subjects page of the second Control Tower GUI;

Figure 42 is a screenshot of the main calls for proposals page of the second Control Tower GUI;

Figure 43 is a screenshot of the main assets page of the second Control Tower GUI;

Figure 44 is a screenshot of the main news sources page of the second Control Tower GUI;

Figure 45a is a screenshot of the main messages page of the second Control Tower GUI;

Figure 45b is a screenshot of the offline messages page of the second Control Tower GUI;

Figure 45c is a screenshot of the send message page of the second Control Tower GUI;

Figure 45d is a screenshot of the channels page of the second Control Tower GUI;

Figure 45e is a screenshot of the view session page of the second Control Tower GUI;

Figure 45f is a screenshot of the join channel page of the second Control Tower GUI;

Figure 46a is a screenshot of the main team page of the second Control Tower GUI;

Figure 46b is a screenshot of the team availability page of the second Control Tower GUI;

Figure 47a is a screenshot of the main resources page of the second Control Tower GUI;

Figure 47b is a screenshot of the resources calendar page of the second Control Tower GUI;

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Figure 48 is a screenshot of the administration page of the second Control Tower GUI; and

Figures 49a and 49b are search pages of the second Control Tower GUI.

10   Detailed Description of the Preferred Embodiments

Referring to Figure 1, there is shown a client-server computer system 10 which is suitable for implementing preferred embodiments of the present invention, the computer system 10 comprising a client side 10a and a server side 10b.

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The client side 10a of the computer system 10 comprises a remote client computer 12a which is provided with an Internet or Web browser (not shown) for displaying Web pages (also not shown). The server side 10b of the computer system 10 includes a server computer 14 (which has a Web server capability), and a local client computer 12b

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The remote client computer 12a may be connected to the server computer 14 via the Internet 16. The local client computer 12b may be connected to the server computer 14 via a local area network 18. In practice, the computer system 10 is likely to comprise many remote client computers 12a and/or many local client computers 12b.

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The server computer 14 is arranged to run an application 20 for implementing the present invention. This application is referred to hereinafter as "Control Tower". The server computer 14 is also arranged to host a data storage facility comprising a data store 22 which provides a central resource for storing data relating to Control Tower 20. The data

30   store includes a database management system (not shown) for managing incoming data, and for logging, filing and retrieving data.

Control Tower 20 may be deployed in a newsroom, and a user 24 of Control Tower 20 may be a staff member of the newsroom, such as a journalist, an editor, editor in chief, administrator, or any other person who has been granted permission to access Control Tower 20.

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Figure 2 shows how information (also referred to as "objects) may be organised in Control Tower 20. Information in Control Tower 20 generally centres on a "story" such as, for example, an interview with Andre Agassi. This story may be associated with a news event. For example, the news event could be a Wimbledon tennis match. The story may also be

10   associated with a subject, which is the topic or theme of the story (such as tennis stars). A subject may correspond to a real world happening that the newsroom does not know about in advance (such as a bombing), or be more theoretical in nature (such as the debate on the legalisation of marijuana). A news event, on the other hand, is a real world happening with a defined start date/time and end date/time for which the newsroom plans coverage in

15   advance, e.g. Wimbledon tennis match.

A task is related to a story. This may be, for example, a task to cover a specific story by producing an element or some other task aimed at preparing content for publication/broadcast. The task is normally based on the same subject as the story, and

20   generally does not introduce new angles, e.g. interview with Agassi - take photograph; interview with Agassi – edit photograph; interview with Agassi – approve photograph for publication. A task may be linked with one or more assets, and one or more elements.

An asset is the result of work produced in the newsroom. An asset may be, for example, a

25   photograph, a piece of text, or a video clip. There are two types of assets used in Control Tower 20: 1) publishing assets (i.e. what will be published/broadcast); and 2) background assets (what has been used in the production of a publishing asset, but will not be published/broadcast). In the following description no distinction will be drawn between publishing and background assets.

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Newsroom users record assets by inputting meta-data and content to Control Tower 20 (e.g. Andre Agassi interview/metadata – video, An interview /w Agassi, length: 1:25, Tape

#345 the second shelf on the right). The function of meta-data will be described in further detail later.

An element is effectively a "placeholder" for an asset, indicating what will be produced (i.e. a text asset will be produced), or points to what has been produced (i.e. the text asset that has been produced) for a particular program/edition of an outlet. An element may be associated with one or more assets, and one or more tasks.

Figure 2 shows that a story is associated with two elements: Element A and Element B. Each element is associated with a publishing asset (Publishing Asset A and Publishing Asset B, respectively). A single task is also shown, the task being associated with the story, and with each Element A and B.

The steps of a first method 100a of creating, managing and executing a process for generating a story according to a first embodiment of the invention are illustrated in Figure 3a.

Consider that Control Tower 20 has been installed in a newsroom of a news organisation based in London, and a story is being run on the collapse of Big Ben. The story is intended for publication in The Times newspaper, and both the text of the story and photographs of the collapse of Big Ben are required. The user 24 in charge of managing the development of the story (known as the "pilot") may create a story folder in Control Tower 20, or the story folder may have been previously created by someone else in the newsroom, such as the news editor.

The pilot 24 firstly specifies at Step 102 each element of the story, and the implementation tasks needed to complete that particular element of the story. For example, the collapse of Big Ben story comprises a text element and a photo element. One of the tasks will be to write some text for the story, and the other task will be to take one or more photographs for the story. The pilot 24 then assigns at Step 104 the tasks to different journalists for execution. So the task of writing text (i.e. copy) is assigned to a copy journalist 24a, and the task of taking photographs is assigned to a photo journalist 24b. The copy journalist

24a and the photo journalist 24b are then both notified at Step 106 of their tasks by, for example, email, instant messaging, SMS text messaging, or any other suitable method. Once the journalists 24a and 24b have completed their assigned tasks, the results of the assigned tasks (i.e. the copy and the photograph(s)) are then sent to Control Tower 20 by

5   any suitable method, and received at Step 108 by Control Tower 20. The copy and the photograph(s) are then stored at Step 110 in the data store 22 (in the story folder) as assets for use in implementing the text and photo elements of the story. Note that once the copy and photographs are in the data store 22, they may be used for other stories. During the next Step 112 of the method, the copy and the photograph(s) (i.e. the assets) are then

10-   constructed into respective element results for the text and photo elements of the story. Approval for each of the element results is then sought at Step 114 from, for example, a newsroom editor. Once the copy and the photograph(s) have been approved, they are compiled at Step 116 to form the completed story which is now ready for publication.

15   The method 100a also comprises the steps of updating a management view of the story from actions carried out by (or using) Control Tower 20 (Step 118), and displaying at Step 120 the management view of the story at different times along its progression from creation to completion. Steps 118 and 120 may be carried out at any time during the method 100a. The management view also enables the pilot 24 (and any other authorised users 24) to view

20   the news outlets to which the Big Ben story is going to be sent for publication/broadcast. It additionally enables the pilot 24 to manage and view the status of each task, and other information relating to the story, as will be described in detail later.

       Referring now to Figure 3b, a second method 100b according to a second embodiment of

25   the present invention comprises the Step 102 described above, but instead of the pilot 24 specifically assigning the tasks to different journalists 24a and 24b at Step 104, the tasks are offered at Step 104a to all of the journalists who have permission access to Control Tower 20. These tasks may be offered in a number of ways. They may be displayed in the management view, emailed to journalists, or offered via SMS text message, etc. For

30   example, an email could be sent to all the photo journalists stating "Photograph of destruction of Big Ben required – deadline Sunday 5th September 2004. To accept task, respond to email with ACCEPT TASK in subject line". The journalists then notify at Step

105a acceptance of the task or tasks they wish to execute, and this information is then stored at Step 105b in the data store 22. The journalists may then be notified during Step 106 (i.e. a confirmation step) of their task for execution. Steps 106 to 120 described above for the first method 100a are then carried out for this method 100b.

Control Tower 20 itself will now be described.

For ease of understanding, Control Tower 20 can be thought of as comprising the following eight modules:

1) Subjects/Conferences - This module providing facilities for story development and editorial conferencing, such as on-line chat rooms. Both editors and journalists are able to open discussions to selected users, entire departments, or the entire newsroom, and users have the ability to keep ideas private, enabling them to upload research web links, files, notes, etc. before opening the idea up for further discussion.

2) Contacts - This module provides a facility for contact (also known as sources) management and knowledge asset creation. It provides a contact data storage facility that may be linked with stories, tasks (or assignments) events, or subjects. Users may also add notes about a contact.

3) Story Management - This module provides for content creation and production monitoring. It allows the creation of tasks, and also allows users to share essential story details including information about which elements are to be produced and the related tasks.

4) Staff - This module is a centralised repository provided by the shared data store for storing staff contact details and areas of specialty, and which allows users to quickly locate key information.

5) People Planner & Resource Planner - This module is for resource allocation planning. It provides an overview of journalist workload (i.e. number of tasks) and availability (i.e. whether they have another commitment which prevents them from covering a story). It also enables booking of shared resources (such as cameras and laptops) that a staff member may need to carry out a task.

6) Messages - This module facilitates communication in the newsroom. Messages enable instant notification of users in the newsroom when new information arrives in Control Tower, enables instant messaging between newsroom staff, and SMS text messaging of journalists in the field.

5   7) Media Schedule & Planner - This module provides edition/program management. The schedule module enables users to manage programming schedules globally.

8) Personal/Shared Calendar - This module provides a time management and editorial forward planning feature. It allows newsroom and personal management of events (local, national, international and classification by a customised system) as well as

10   personal deadlines, interviews, meetings, conferences, work related travel, holidays.

Figure 4 illustrates how the above modules may be interconnected in Control Tower 20, and how users 24 may interact with these modules. However, it will be appreciated by the skilled person that a Control Tower application for use in one newsroom may use different

15   modules than another Control Tower application for use in another newsroom in a different organisation. The skilled person will also recognise that the functionality of these modules may be implemented in a number of different ways in Control Tower 20. For example, Control Tower also comprises a graphical user interface (or GUI) 30, the "look and feel" of which may vary according to the requirements of an organisation. To illustrate this point,

20   two Control Tower GUIs 30a and 30b will now be described.

Control Tower 20 having a first GUI 30a is now described with reference to the screenshots shown in Figures 5 to 37d.

25   Control Tower 20 can be implemented as a Web-based application. Figure 5 shows Control Tower's first graphical user interface (GUI) 30a displaying a Web page 31 which will be displayed in a user's Web browser (not shown). The Web page 31 includes a first frame which displays a toolbar 32, a second frame which displays a menu 34, and a third frame constituting a display area 36.

30

Figure 5 shows a home page 26 displayed in the display area 36. The home page 26 provides the user 24 with a snapshot of all activity that has been occurring in the newsroom

since the last time the user 24 logged in to Control Tower 20. Important information relevant to the user 24, such as the user's current tasks, incoming proposals, today's news events, and what's on today, may be shown on the home page 26. Control Tower 20 can be configured to present other information to the user 24 on the home page 26 such as, for
5   example, her messages, personal appointments, meetings etc.

The toolbar 32 comprises the following buttons: New Story 32a, New Event 32b, New Appt 32c, New Source (i.e. contact) 32d, Call for Proposals 32e, New Message 32f, New Booking 32g, Search 32h and Print 32i. The functionality attributed to these buttons will be
· 10 · described later.

The menu 34 comprises the following buttons or links: Stories 34a, Elements 34b, Tasks 34c, Assets 34d, Settings 34e, and Administration 34f. The functionality attributed to each of these button will now be explained.

15

Stories

The story functionality of Control Tower 20 implements the aforedescribed story management module. By clicking on the Stories button 34a in the menu 34, the main
20   Stories page 38 shown in Figure 6 is displayed in the display area 36 of the Web page 31. The purpose of this page 38 is to centralise all information relating to a story, and to give the user 24 an overall view of the coverage being accorded to a particular topic. For example, this page 38 shows information relating to five stories: the title of each story is displayed, the department to which the story is attributed, the outlet which will (or has) run
25   the story, and buttons which enable a user to view further details of each story and to delete each story from the data store 22. It can be seen that the status of the third story on the list ("Big Ben falls down") is live (i.e. it is due for publication), it is attributed to the news department, and it is due for publication in The Times on 20th August 2004. Other details of the story could also be displayed on this page, according to how Control Tower is
30   configured/implemented in an organisation.

All users with appropriate access rights may access the Stories page 38 and manage stories.

There are two ways of creating a new story: 1) by clicking on the New Story button 32a in the toolbar 32, or clicking on the Add New Story button 40 displayed on the Stories page 38. Both of these actions result in the page 42 shown in Figure 7 being displayed. The user

5   24 then simply fills in the story details (including the title of the story and a short description) in the text boxes 43 provided, indicates (by checking the appropriate check boxes 44) with which newsroom and departments the story is to be associated, and also assigns the outlets and the outlet edition (by use of the relevant check boxes and drop down menus 46). The user 24 may also add team members to the story. Once the story details

10   have-been-entered, the user clicks the Save button 48 which uploads the new story details to the data store 22, and this story is now available for display on the main Stories page 38.

Referring back to Figure 6, in order to view the details of a story, the user 24 clicks on the appropriate View button 50 and the View Story page 52 shown in Figures 8a and 8b is

15   displayed. Referring specifically to Figure 8a, it can be seen from the View Story page 52 that the description of the story is visible. The user 24 is also able to amend the status of the story from "live" to "archived" (and vice versa), using the drop down menu 46 provided. The status of a story may also be amended from the main Stories page 38 by way of drop down menus 46 provided (but not shown) adjacent the departments information for

20   each story. It will be appreciated that although in this case only two statuses are provided (i.e. live and archived), it is possible to configure Control Tower 20 to provide any number of statuses, according to the work practices of the organisation in which Control Tower is implemented.

25   Team members working on the story can also be viewed on page 52, and team members can be added to a story by clicking on the Add User button 54. A team member's details can also be edited on this page 2. By clicking on the Edit User button 56 displayed on the part of the page 52 shown in Figure 8a, the page 58 shown in Figure 11 is displayed. This page 58 comprises a number of check boxes 44 which the user can tick to add or delete

30   roles for a user 24. These roles will be explained further later. Amended user roles may then be uploaded to the data store 22 by clicking on the Save button 48 provided.

Returning now to Figure 8a, clicking on the Add User button 54 displayed on page 52 displays the Set Users page 60 shown in Figure 12. This page 60 comprises a list of users 24 and associated Add buttons 62. To add a user, the appropriate Add button 62 is simply clicked, and this information is written to the data store 22.

5

Referring now to Figure 8b, brief details of the elements of the story are also displayed on this page 52. In this case, the story comprises five elements: a text element, an interviews element, a photo element, a graphic element, and an update element. The title of each element is displayed, along with the element type, the department, the outlet and date, the

10.   stage of the element (which will be discussed later). View and Delete buttons 50 and 64 are also provided for each element so that the element can be viewed or deleted. An Add New Element button 66 is also provided to enable a user 24 to add new elements to the story.

By clicking on the View button 50 in the Photo element row, the View Element page 68

15   shown in Figures 13a, 13b and 13c is displayed. Referring specifically to Figure 13a, this page 68 lists the type, title, description and stage of the element. For example, this element is currently awaiting review. A link to the Story associated with the element is also provided. Details of the newsroom, the department and the outlet and publication date can also be seen on this page 68. An Edit button 70 is provided on this page for editing the

20   element.

Upon clicking the Edit button 70, the Edit Element page 72 shown in Figure 14 is displayed. This page includes text boxes 43 for entering/amending the title of the photo element, and for entering/amending the description of the photo element. Although not

25   shown here, it may also be possible to edit the element stage from this page using a drop down menu. The user 24 can also amend the newsroom, department and outlet details. The user 24 can also specify that the photo element is to be private (i.e. not available to any other user) by checking the Private checkbox 44a. To upload the amended photo element details to the data store 22, the user simply clicks the Save button 48.

30

Returning to Figure 8b, by clicking the Add New Element button 66, the Add New Element page 74 shown in Figure 15 is displayed. This page 74 is similar to the page 72

shown in Figure 14, except the user can specify the element type using a first drop down menu 46a, and can also specify the element stage (i.e. whether the element is unassigned, assigned, awaiting review, approved, copy edited, ready for publication, published, cancelled, or on hold) using a second drop down menu 46b. Team members can also be

5   added from this page 74.

Referring now to Figure 13b, the team members working on this element are listed, together with their role (i.e. pilot, creator, team member etc). Edit and Remove buttons 70 and 76 are provided for each team member, so that the team member's role can be

10   amended, and the team member can be removed from a story. An Add User button 54 is also provided for adding a user/team member to the element, as previously described.

Referring now to Figure 13c, the details of various assets associated with the element are displayed. The title of each asset is displayed, together with the asset type (if specified), and the department(s) and outlet(s). View and Delete buttons 50 and 64 are also provided

15   for each asset, so that assets can be viewed (and edited if necessary) and deleted. New assets can be added to the photo element using the Add New Asset button 78, and existing assets can be added to the element using the Add Existing Asset button 80.

Clicking on the View button adjacent one of the Big Ben Rubble assets on this page 68

20   displays the View Asset page 82 shown in Figure 16. This page 82 indicates the asset type, the title, description, newsroom, department and team member(s). A link 84 to the file storing the asset is also provided. In this case, the asset is an image 86 in the form of a .jpg file. Clicking on the link 84 displays the image 86 of Big Ben in ruins as shown in Figure

25   17. Returning to Figure 16, the asset may be amended by clicking on the Edit button 70 provided on page 82 which displays the Edit Asset page of Figure 18. The user then edits the details of the asset shown in the page by amending the text displayed in the text boxes provided, and/or by checking the appropriate check boxes to associate the asset with particular newsrooms, outlets or departments, etc. This editing asset information may then

30   be uploaded to the data store 22 by clicking on the Save button 48 displayed at the bottom of the page 88.

Returning now to Figure 13c, clicking on the Add New Asset button 78 displays the Add Asset page 90 shown in Figures 19a and 19b. Using this page 90, the asset type can be specified (i.e. text, photo, graphic, video, or audio) using a drop-down menu 46, the title and description of an asset can be specified, together with the newsroom, department and

5   outlets. Referring specifically to Figure 19a, there is shown a Browse button 92. By clicking on this button 92, the browser 94 shown in Figure 19c is displayed, giving the user and opportunity to choose a file to be saved to the data store 22. Looking at Figure 19b, team members can also be added to an asset by use of the Add User button 54 in the same manner as previously described. Once all the details of an asset have been specified, this

-10 - - - information can be uploaded to the data store 22 by clicking on the Save button 48.   ·   ·

Returning to Figure 13c, an existing asset can be added to a story by clicking on the Add Existing Asset button 80, which displays the Add Assets page 96 shown in Figure 20. A list of existing assets is presented to the user 24 on this page 96, and an asset can be added

15   to a story by simply clicking on the relevant Add button 62.

Returning again to Figure 13c, to view further details of the displayed task (or to edit the task), the user 24 clicks on the View button 50 to display the View Task page 98 shown in Figures 21a and 21b. Referring to Figure 21a, the View Task page 98 displays the task type

20   (if one exits), the title, description, task status, the deadline by which the tasks needs to be completed, and details about the newsroom, department and outlets. Links 84 to the story ("Big Ben falls down") and the photo element to which the task is related are also provided. An Edit button 70 is also provided so that a user may edit the task details in a similar manner to the editing of assets and elements. Referring to Figure 21b, the team

25   members working on the task are also displayed, and a team member's role can be amended by clicking on the appropriate Edit button (and carrying out the necessary actions which have already been described). A team member can be deleted from the task by clicking on the appropriate Remove button 76. As previously described, a user 24 may be added to the team by clicking on the appropriate Add User button 54 and selecting one or

30   more users from a displayed list. Changes to a task can be saved to the data store 22 by simply clicking on the Save button 44 which is provided at the bottom of the page 98.

Returning to Figure 13c, to add a new task to a story, the user may click on the Add New Task button 100 which is displayed at the bottom of the page 68. This displays the Add Task page 102 shown in Figures 22a and 22b. Using this page 102, the task type may be specified (e.g. graphic, text, audio, graphic etc) in addition to the title of the task, and a

5   short description. The deadline by which the task should be completed can also be specified, and a calendar button 104 is provided so that the user may choose a date from a popup calendar 106 such as that shown in Figure 10b.

From page 102, the status of the task can also be specified (e.g. new, accepted, rejected,

10   cancelled, complete) using a drop-down menu 46. It will be apparent to the skilled person that the task status options may be defined according to the organisation in which Control Tower 20 is installed. A user 24 is also able to specify a task as private so that it is only available to the user. The newsroom, department and outlet can also be specified, and users can be added to the task by clicking on the Add User button 54 provided (see Figure 22b).

15   Once the task details have been specified, the details may be saved to the data store 22 by simply clicking on the Save button 48.

Also provided at the bottom of page 68 shown in Figure 13c is an Add Existing Task button 108 which, when pressed, displays the main Tasks page 110 shown in Figure 23.

20   Each task has an Add button (not shown) which, when pressed, adds the selected task to the story.

Returning to Figure 8a, upon clicking the Edit button 56 displayed on this page 52, the Edit story page 112 shown in Figure 9 is displayed. This page 112 presents the user 24 with a

25   number of editable text boxes 43 containing text about the story. The user can also amend newsroom, department and outlet details, as well as specifying/amending or adding publication dates by checking the appropriate check boxes 44. To upload the amended story details to the data store 22, the user clicks the Save button 48 displayed on the page 112.

30

Outlet and publication dates can also be amended by way of a drop down menus and check boxes in the outlets column of the main stories page 38, as shown in Figure 10a. For

example, a drop down menu 44 may display a range of publication dates for selection. One or more calendar buttons 104 can also be provided which, when clicked, display the pop-up calendar 106 shown in Figure 10b. A user may then select the publication date from the calendar 106 by clicking on the relevant date. An Add button 62 is also provided for adding

5   an outlet to the story.

Returning now to Figure 6, the list of stories which are displayed on the Stories page 38 may be filtered by using dropdown menus 46 which allow the user to choose the display of stories by area (e.g. the user's private area, or the general area), newsroom, department,

10   status (e.g. live or archived), outlet, or publication date. Stories may also be linked to other stories to provide further information about a given subject.

In summary, the Stories module of Control Tower enables:

- Ongoing access to key status data on editorial and newsgathering activities (e.g.
15   distribution schedules, task lists etc);

- Flexible management of tasks, and the assigning of work to the various newsroom teams;

- Centralisation of all story and task-related information in easy to use individual folders (including the storage of final, unedited content);

20   • Planning of the content output of a particular edition or program;

- Easy tracking of distribution/publishing slots for any given story across any existing outlet.

Elements

25

Elements enable a user 24 to specify exactly what will be produced for a specific outlet. By clicking on the Elements button 34b in the menu 34, the main Elements page 114 shown in Figure 24 is displayed in the display area 36 of the Web page 31. The purpose of this page 114 is to centralise all information relating to an element by listing all the elements which

30   are to be used to tell a story, such as text, audio, video, animation, graphic, or photo. This page 114 also displays a list of elements, the story with which the element is associated,

and the department responsible for the element, the outlet to which the story is to be provided.

5   For example, this page 114 shows a list of two elements which includes the following element information: the element title, the element type (if one has been specified), the story to which the element is associated, the department to which the story (and therefore the element) is attributed the outlet which will (or has already) run the story, and buttons 50 and 64 which enable the user 24 to view further details of each element, and to delete each element. For example, it can be seen from this list that the first element relates to a
10 photograph of a monkey, the element type is not specified, the photograph is associated with a story entitled "Gene blocking turns monkeys into workaholics", the story (and therefore the element) is associated with the news department, and is due for publication in The Times on 14th August 2004. The department and outlet details can also be edited from this page using the Edit buttons 70 provided. Other details of the element could also be
15 displayed on this page, depending on how the system is configured/implemented in the organisation.

By clicking on the View button 50 associated with the photo of a monkey element, the appropriate View Element page 68 is displayed (see Figure 25a). This page 68 is similar to
20 that shown in Figures 13a to 13c, but in this case a drop down menu 46 is provided for specifying the element stage (i.e. unassigned, assigned, awaiting review, approved, copy edited, ready for publication, published, cancelled, on hold). The element stage can be amended on this page 68 by selecting from the list of stages provided in the dropdown menu. Alternatively, the Edit button 70 may be used.

25

The list of elements displayed on the Elements page 114 may be filtered using dropdown menus 46 which allow the user 24 to choose the display of elements by element type, area, newsroom, department, status (e.g. unassigned, assigned, awaiting review, approved, copy edited, ready for publication, published, cancelled, on hold), or outlet. Again, the GUI 30a
30 may be configured to allow the filtering of elements (or any other objects in Control Tower) using other criteria.

Tasks

The Tasks pages enable better tracking of story coverage and facilitate sharing of resources, contacts and assets (i.e. files). In this manner, the editor can be kept informed of all the
5   tasks to see how they are progressing, and take action if necessary to meet deadlines.

By clicking on the Tasks button 34c in the menu 34, the main Tasks page 116 shown in Figures 27a and 27b is displayed in the display area 36 of the Web page 31. The purpose of this page 116 is to centralise all information relating to tasks. For example, a list of seven
10   tasks is shown which include the following task information: the task title, the task type (if one has been specified), the department to which the task is associated, the outlet which will (or has already) run the story to which the task is related, the status of the task (i.e. new, accepted, rejected, cancelled or complete), and buttons which enable the user to view further details of each task, and to delete each task. For example, it can be seen from this
15   list that the second task is entitled ("I just need one more photo of a monkey"), the task type is not specified, the task is associated with the news department, and the task status is new. The department and outlet details can also be edited from this page using the Edit buttons provided. Other details of the task could also be displayed on this page, according to how the system is configured/implemented in the organisation.
20

Individual tasks may be viewed, edited, added and/or deleted in a similar manner to stories, elements and assets, and so will not be discussed further. However, all modifications to tasks (such as a change in the task status) are saved in an ongoing object history. E.g. 12/12/03 1.30 pm Editor Bob Creates Assignment 1; 14/11/03 4:31 am Journalist Jane
25   Accepts Assignment 1. Tracking of this sort enables management performance reports and allows greater transparency of tasks between users.

The list of tasks which are displayed on the Tasks page 116 may be filtered by using dropdown menus 46 which allow the user 24 to choose the tasks displayed by task type,
30   area, newsroom, department, status, date, or outlet.

Assets

Results of executing tasks are saved in the Control Tower data store 22 as assets. Assets

5   may be associated with meta-data to enable their research, retrieval and re-use. Users 24

may record and search for any file uploaded to the Control Tower data store 22 whether

related to a story, event, task or topic etc via the associated assets. Thus content (i.e. raw

unedited copy) may be distinguished from files (i.e. background material). This also

enables assets to be re-used in different stories.

10

By clicking on the Assets button 34d in the menu 34, the main Assets page 118 shown in

Figures 29a and 29b is displayed in the display area 36 of the Web page 31. The purpose of

this page 118 is to centralise all information relating to assets. For example, this page 118

shows a list of eight assets which include the following asset information: the asset title,

15   the asset type (if one has been specified), the department to which the asset is associated,

and the outlet which will (or has already) run the story to which the asset is related, and

buttons which enable the user to view further details of each asset, and to delete each asset.

For example, referring specifically to Figure 29a it can be seen from this list that the first

asset is entitled "Names v1", the asset type is not specified, the asset is associated with the

20   news department and The Times (for publication on 18th August 2004). The department

and outlet details can also be edited from this page using the Edit buttons 70 provided.

Other details of the asset could also be displayed on this page depending on how the system

is configured/implemented in the organisation. New Assets can be added by clicking on the

Add New Asset button 78 provided at the bottom of this page, as previously described.

25

The list of assets which are displayed on the Assets page 118 may be filtered by way of

dropdown menus 46 which allow the user to choose the assets displayed by asset type, area,

newsroom, department, status, date, or outlet. This function is configurable allowing assets

to be filtered according to yet unspecified attributes.

30

Settings

5   Clicking on the Settings button 34e in the menu 34 displays the Message Settings page 120
shown in Figure 30. As described above, users 24 may be notified of tasks via email,
instant messaging, or SMS text messaging, etc. A user 24 can specify how they are to be
notified of being assigned a task (or other action taken in Control Tower 20) according to
the priority of the message. So, for example, a user may choose to be notified of low and
10   medium-priority messages by email, but of high priority messages by SMS text or instant
messaging. Using this page 120, a user 24 can add or amend their message settings, and
specify how they are to be notified according to the priority of the message. This can be
done by clicking on the relevant Edit button 70. Alternatively, a user's message settings
can be amended by use of the drop down menus 46 and the text box 43 displayed at the
15   bottom of the page, followed by pressing the Add button 62 to save the information to the
data store 22. It will be appreciated that although three priorities are specified here, Control
Tower is configurable to define as many priorities as required.

Administration

20

An administrator may be appointed to oversee Control Tower 20. The Administration
function of Control Tower 20 allows the administrator (and/or other authorised user) to
tailor Control Tower to their particular organisation or newsroom. By clicking on the
Administration button 34e displayed in the menu, the page 122 shown in Figure 31a is
25   displayed. The menu 34 also changes to display the following new buttons: Users 28a, User
Groups 28b, Departments 28c, Newsrooms 28d, Outlets 28e, Roles 28f and Categories
28g. The functionality of these new buttons is now explained.

Users

30

A list of users 24 is automatically displayed on page 122 when the administration button
34e is clicked. View and Delete buttons 50 and 64 are also provided for each user 24 on the

list. Clicking on the View button 50 for the Art Editor displays the View User page 124 shown in Figure 31b. This page 124 displays the name of the Art Editor, the user group to which the Art Editor belongs (e.g. Art Desk Editor), and can also display the newsroom, department and outlets the Art Editor is associated with.

5

An Edit button 70 is also provided on this page 124 which, when pressed, displays the Edit User page 126 shown in Figures 31c and 31d. The Edit User page 126 provides editable text boxes for specifying the user's name and password, and a list of user groups to which the user may be added/deleted (see Figure 31c) by checking the appropriate check boxes

10 44. The newsroom, department and outlets can also be specified for the Art Editor, again by way of check boxes 44. To save the Art Editor details to the data store 22, the user simply clicks on the Save button 48 provided at the bottom of the page 126.

In Control Tower 20, users are able to specify access rights for each object that they own.

15 Viewing and/or editing rights for an object may be limited to specific users, departments, newsrooms, or even outlets. Objects may also be kept private so that they may only be viewed and/or edited by one particular user 24. Additionally, the system administrator is able to assign rights to objects.

20 To implement this function, Rights buttons 128 are provided adjacent the newsroom, department and outlet check boxes 44. By clicking on one of the Rights buttons 128, the Set Access Rights page 130 shown in Figure 32 is displayed. Using this page 130, the administrator (or other user) can add certain permissions to users working in newsrooms, departments, outlets, etc. For example, all the members of the newsroom may be given

25 permission to add, delete or edit tasks, or permission to be named as a pilot so that they may create new stories or receive particular notifications. These permissions can be set by checking the appropriate check boxes 44 on the Set Access Rights page 130, and this information can be saved to the data store 22 by clicking on the Set button 132 provided at the bottom of the page 130.

30

User Groups

By clicking on the User Groups button 28b in the menu 34, the User Groups page 134 shown in Figure 33 is displayed. A list of user groups is shown on this page 134, and View,
5   View User, and Delete buttons 50, 136 and 64 are provided for each user group. User Group details can be viewed by clicking on the appropriate View button 50, each user in a user group can be viewed by clicking on the appropriate View User button 136, and a user group can be deleted by clicking on the appropriate Delete button 64. User groups can also be added by clicking on an Add New User Group button provided on the page (not shown)
10   and specifying the new user group name and group members.

Departments

By clicking on the Departments button 28c, the Departments page 138 shown in Figure 34
15   is displayed, which includes a list of departments and associated View and Delete buttons 50 and 64. New departments can be added by clicking on the Add New Department button 140 and specifying the department name, users etc.

Newsrooms

20

By clicking on the Newsrooms button 28d, the Newsrooms page 142 shown in Figure 35 is displayed, which includes a list of newsrooms and associated Edit and Delete buttons 70 and 64. New newsrooms can be added by clicking on the Add New Newsroom button 144 and specifying the newsroom name, users etc.

25

Outlets

By clicking on the Outlets button 28e, the Outlets page 146 shown in Figure 36 is displayed, which includes a list of outlets (e.g. The Times) and associated View and Delete
30   buttons 70 and 64. New Outlets can be added by clicking on the Add New Product button 148, and specifying the new product (i.e. outlet) name etc. The outlet may be of any type such as a newspaper, Web publishing group, radio station, television station, etc.

Roles

In addition to belonging to one or more user groups, a Control Tower user 24 may assume

5   different roles in relation to different objects. Roles are not set in stone, but may be dynamically created and granted so that at any given time, a user may assume multiple roles in relation to different objects. For example, a user may be given one of the following roles:

1) Assignee – the person who is assigned to carry out work in relation to an object;

10   2) Creator – the person who creates an object;

3) Pilot – the person managing the production of an object;

4) Team Member – the person working on an object in some capacity.

By clicking on the Roles button 28e, the Roles page 150 shown in Figure 37a is displayed

15   which includes a list of roles such as, for example, assignee, creator, owner, pilot and team member. View Notifications buttons 152 are also provided for each different role.

When the View Notifications button 152 for the Assignee role is clicked, the Notifications page 154 shown in Figure 37b is displayed which includes a list of notifications and

20   associated actions. This page 154 displays two notifications for the assignee: "Assigned to a task" and "Removal notification" which have respective actions "assign" and "remove". That is, when a user 24 is assigned to a task (or an asset or story etc), Control Tower 24 sends a message to the assigned user informing them that they have been assigned to a task and, when an assignee is deleted from a task, they are sent a message informing them of

25   this fact. Messages may also be sent to a user 24 when he or she is removed from a story, or a new role is associated with that user, or indeed for any specified action etc. Again, Control Tower may be configured to define different user-specified actions, depending on how an organisation functions.

30   Edit and Delete buttons 70 and 64 are also provided on this page 154 for each notification. Clicking on the Edit button 70 for the assign notification displays the Notification Edit page 156 shown in Figure 37c from which the message details can be edited by way of

editable text boxes 43 and drop down menus 46. For example, if a user 24 is assigned to a task, the message sent is "<objectModifiedBy/> has assigned a task to you. You can find the task at the following address: <objectURL/>".. This could be amended to read "<objectModifiedBy/> has assigned a task to you. You can find the task at the following

5   address <objectURL/>. Please call the office if you wish to accept this task". The body of the message includes embedded tags (i.e. meta-data) which enable the transmission of additional information about the object (e.g. the user who modified the task, department, description, URL, etc). This provides additional flexibility to the system as system- or organisation-specific data can be easily handled without the need to modify Control Tower

10-   -in any substantial way.

Using the Notification edit page 156 the priority of the notification can also be specified which, as described earlier, determines how the message is communicated to a user 24. The action related to the notification can also be amended from this page 156. In this case this

15   functionality is achieved by the use of drop down menus 46 which a user 24 uses to select given priorities and actions. To save the edited notification to the data store 22, the Save button 48 is clicked.

Returning now to Figure 37b, by clicking on the Add New Notification button 158

20   displayed at the bottom of the Notifications page 154, the Add Notification page 160 shown in figure 37d is displayed, which is identical to the page shown in Figure 37c and so will not be described.

Categories

25

A category is essentially any grouping of an object around which an organisation wishes to classify information. Control Tower 20 enables the customisation of categories according to different organisational units and objects, which enables the customisation of workflow and metadata for retrieval of information. Each object in Control Tower 20 may be

30   associated with categories at, for example, the newsroom, department and outlet level. Furthermore, categories may be specific to one department, or may be shared across different departments. That is, a news-specific category named "Beat" may be specified for

classifying an organisation's news stories, and a category "Status" may be also be specified, stories in this category being shared between all departments. A category may also have one or more values, and each category value may be assigned a notification such that when the value of a particular category is set, a notification is sent to Control Tower users.

The category function is an important part of Control Tower as it aids in the management of workflow by enabling the administrator to customise which user(s) should be informed at each stage of the story management process. It also provides a highly configurable system as categories can be created for any object in the system, which means that Control Tower can be implemented in any type of organisation that requires management etc of a multi-element process. It also enables individual Control Tower applications to be produced for different organisations easily and inexpensively. A screenshot for the category function is not provided for this GUI 30a.

Other Features

Control Tower 20 may provide other functions, such as those specified by the buttons 32a to 32i which are shown in the toolbar 32 in Figure 5. Although screenshots for these functions are not available for this GUI 30a, the functions will now be briefly described.

Control Tower 20 may also manage and display news events. A new news event can be added by clicking on the New Event button 32b, which displays a page where information relating to that new event may be specified and saved to the data store 22.

Control Tower 20 may also be used to schedule and view appointments by clicking on the New Appt button 32c. Individual users 24 would therefore be able to use Control Tower 20 as their private diary. Additionally, the administrator would be able to view all general appointments (and maybe even private appointments) for staff members, and therefore enable personnel functions to be carried out.

Contacts can also be managed by Control Tower 20, and new contacts (also known as sources) can be added by clicking on the New Source button 32d and specifying the contact's details. Control Tower 20 can also be used to request and display calls to journalists/editors etc for new stories, and this may be done by clicking on the Call for

5   Proposals button 32e. By clicking on the New Message button 32f the system can be used to create and send messages to other Control Tower users 24. The New Booking button 32g can be used to book a resource, such as a camera or a laptop.

The search button 32h can be used to search the data store 22 for stories, photos, contacts,

-10   - etc of interest, whether live- or-archived. The search could be carried out by a simple keyword search that returns objects regardless of their type, by providing dropdown menus, or via any other suitable method. Alternatively, the search button may be used to connect to an external search facility such as Autonomy. The search will, of course, only return those objects which are public, or those a user has permission to view. A print button 32i is also

15   provided for printing information from Control Tower 20.

A second GUI 30b will now be described with reference to the screenshots shown in Figures 38a to Figure 49b. This GUI 30b is also Web based, and the Web page 31 includes a first frame which displays a toolbar 164, and a second frame which constitutes a display

20   area 36. The home page of the second GUI 30b is shown in Figures 38a and 38b.

The toolbar 164 comprises the following buttons: Agenda 164a, Events 164b, Assignments 164c, Subjects 164d, Calls for Proposals 164e, Assets 164f, News Sources 164g, Messages 164h, Team 164i, Resources 164j, Settings 164k and Administration 164l. The

25   functionality attributed to these buttons will now be described.

Agenda (Stories)

The home page 162 displays the Story Budget details. That is, the title of each story is

30   displayed, along with the associated department, outlet, and the story status (e.g. Approved, etc). Buttons 50, 166 and 58 for respectively viewing story details, archiving a story, and deleting a story, are also provided. A new story may be added from this page 162 by

clicking on the New Story button 40. The list of displayed stories can also be filtered by using the drop down menus provided at the top of the page 162. Stories can be filtered by, for example, area, newsroom, department, status, approval status, outlet, date, category, subject or event. This home page 162 is similar to the home page 38 of the first GUI 30a, and so will not be discussed further.

Events

The events function maintains a list of all events which could be covered by the organisation, and is part of the planning function of Control Tower 20. By clicking on the Events button 164b, the Events page 168 shown in Figure 39 is displayed. The Events page 168 centralises all information pertinent to an event which enables forward planning of event coverage, and displays a list of events, the associated departments, outlets and publication date, and the approval status of each event. The list of displayed events may be filtered using drop down menus 46 provided at the top of the page 168. New events may be added by clicking on the New Event button at the bottom of the page 168 which displays a page (not shown) having editable text boxes etc where the user 24 can specify event details. These event details can then be saved to the data store 22.

Assignments (Tasks)

By clicking on the Assignments button 164c, the Assignments page 172 shown in Figure 40 is displayed. This page 172 is able to display a list of assignments, the deadline of each assignment, the assignment type, status and the associated story. The list of displayed assignments may be filtered using drop down menus 46 provided at the top of the page 172. New assignments may be added by clicking on the New Assignments button (not shown) provided at the bottom of the page 172.

Subjects

The Subjects section enables users to group stories around an overarching theme or topic. This allows the newsroom (or other group) to track coverage of major stories (e.g.

Parmalat, Presidential elections, the Atkins diet) over indefinite or definite periods of time. The Subjects section is part of the planning function of the system.

5   By clicking on the Subjects button 164d the Subjects page 174 shown in Figure 41 is displayed. This page 41 shows a list of subjects, the description of each subject, the relevant department(s) (e.g. News, Local News), the creator of the subject, and buttons 50, 166 and 64 for viewing, archiving and deleting each subject. The list of displayed subjects may be filtered using the drop down menus 46 provided at the top of the page 174. For example, displayed subjects may be filtered according to newsroom, department, status, or

10 - - category. New subjects may be added by clicking on the New Subject button 176 provided at the bottom of the page 174. This action displays a page (not shown) containing editable text boxes in which the user may specify subject details. The subject details may then be saved to the data store 22.

15   Messages may also be associated with a subject (although this facility is not shown). The intended recipients of the message could also be added to the subject, together with the message delivery priority. Details of the team involved with the subject could also be available to the user via the Subjects page 174, along with the possibility of adding new team members to a subject from the data store 22 by clicking on an Add Existing User

20   button (not shown). Other information related to a subject such as assets and contacts, could also be provided.

Call for Proposals

25   The Call for Proposals section is part of the planning function of the system, and enables editors to invite stories from their journalists on a given subject. Submitted story proposals may be displayed on both the Call for Proposals page and on the Agenda (Stories) page 162.

30   By clicking on the Call for Proposals button 164e, the Call for Proposals page 178 shown in Figure 42 is displayed. This 178 page shows a list of proposals, the description of each proposal, the relevant department(s) (e.g. News, Local News), the creator of the proposal,

and buttons 50, 166 and 64 for viewing, archiving and deleting each proposal. The list of displayed proposals may be filtered (e.g. by newsroom, department, status or category) using the drop down menus 46 provided at the top of the page. New calls for proposals may be added by clicking on the New Call for Proposals button 180 provided at the bottom of

5   the page 178 which displays a page (not shown) including editable text boxes. New Call for Proposals information may be saved to the data store 22.

An example of a proposal submitted by a user 24 in response to a Call for Proposal is shown in Figure 26a. The response includes a link to the user which, when clicked,

10   displays the page shown in Figure 26b.

Assets

By clicking on the Assets button 164f, the Assets page 182 shown in Figure 43 is

15   displayed. This page 182 shows a list of assets, the asset status, the asset format (or type), the asset classification (e.g. report, content, other), and buttons 50 and 64 for viewing and deleting each asset. The list of displayed assets may be filtered using the drop down menus provided at the top of the page. The assets may be filtered by area, format, classification, status, newsroom, department, outlet, date, category, or via a text search, for example. New

20   assets may be added by clicking on the New Asset button 78 provided at the bottom of the page 182.

News Sources (Contacts)

25   By clicking on the News Sources button 164g, the New Sources page 184 shown in Figure 44 is displayed. This page 184 shows a list of the names of the news sources, the type of news source (e.g. expert), and buttons 50, 166 and 64 for viewing, archiving and deleting each news source permanently from the data store 22. The list of displayed news sources may be filtered using the drop down menus 46 provided at the top of the page 184. For

30   example, news sources may be filtered by area, newsroom, department, status, category, type, or displayed alphabetically.

New news sources may be added by clicking on the New News Source button 186 provided
at the bottom of the page 184. News sources can be shared between all users, or may be
kept private. Functionality for associating files and notes with a particular news source may
also be provided, or for notifying news sources.

Messages

The messaging function provides for centralisation of all system communications. As
mentioned earlier, system messages may be sent via email, instant messaging, or SMS text
messages. Control Tower 20 may be easily configured to deal with other types of messages.

By clicking on the Messages button 164h, the Messages page 188 shown in Figure 45a is
displayed. This page 188 provides users with a text box 43 for entering message text, a
drop down menu showing a list of users to whom messages may be sent, and a drop down
menu 46 for indicating the priority of the message. A list of messages which have been sent
to or from Control Tower 20 may also be viewed in the Offline Messages page 190 (see
Figure 45b). Message information such as the message priority (i.e. low, medium, or high),
the title of the message, the context of the message (i.e. whether it is associated with a
newsroom, department, story or task) can be viewed on this page 190. A facility for
creating and sending messages is also provided on this page. Alternatively, a Send Message
page 192 can be used for creating and sending messages, as shown in Figure 45c. Here, the
message creator can insert the message text in a text box 43, tick check boxes 44 to
indicate the intended recipient of the message (e.g. a user 24 may send messages to
individual users, departments and newsrooms), and use a drop down menu 46 to specify
the message priority.

Control Tower 20 may also provide an instant messaging facility organised around
Channels. Channels may be automatically generated by the system (in the case of new
events, tasks, stories or conferences etc being created), or can be created by users to
facilitate discussion of a particular story etc. An example of a Channels page 194
illustrating the instant messaging function is shown in Figure 45d. As can be seen from this
page 194, there is shown a list of channels (e.g. Moscow train bombers, Control Tower,
Test Channel etc). Associated with each channel there is a Join button 196, a View Logs

button 198, and a Delete button 64. A New Channel button (not shown) is also provided so that a new channel can be created by a user 24.

5 If a user 24 wishes to join an existing channel, she clicks on the relevant Join button 196. In this case, the user (Diana Stech) has joined the Moscow train bombers channel, and a page 200 for sending and viewing the instant messages for this channel is displayed (see Figure 45f). A list of team members is also displayed, together with information indicating whether they are currently on- or off-line. A user 24 may create an instant message by typing text into the text box 43 provided at the bottom of this page, and can send the

10 message by simply clicking on the Send button 202.

A user may wish to view an instant messaging session which has taken place. In this case, the user clicks on the View Logs button 198 of the channel they wish to view, and the View Session page 204 shown in figure 45e is displayed. This page 204 indicates the name

15 of the channel, the start and end times of the session, and displays all the instant messages sent, the time at which the messages were sent, and the sender of each message.

The aforedescribed messaging function is an optional module in Control Tower 20. Control Tower 20 is able to integrate with external messaging software such as Microsoft

20 Outlook^{TM} and, in the event a client prefers, can rely on this external software to handle all of the system messages. This would work in the following manner. A page would be displayed where the user 24 is able to select the intended message recipients. The user would then click on the provided Compose button which launches Outlook^{TM}. The recipient field would be pre-filled with the selected recipients, and the copy field would be

25 mailbox@ct.com (or any other suitable address). The subject line would be pre-filled with the task title etc which would allow a Control Tower central mailbox to assign the task to the appropriate journalist. The message would be received in the journalists personal Outlook^{TM}, and the message saved to the Control Tower data store 22. A response to a message sent from Control Tower 20 to Outlook^{TM} could either be kept private, or saved to

30 the Control Tower data store 22.

Outlook™ could also be used for the management of news sources (contacts). Integration with Outlook™ also enables a user to copy the details of a news source (contact) created in Outlook™ into Control Tower 20.

5 **Team (Staff)**

The Team section is part of the people planner function of Control Tower 20 which provides an overview of staff availability and holiday/out of town coverage so that assigning editors have an at-a-glance view of staff activity so that only available staff are 10 assigned to stories.

By clicking on the Team button 164i in the toolbar 164 shown in Figure 38a, the Team page 206 shown in Figure 46 is displayed. This page 206 shows a list of team members, the department(s) (e.g. News, Sports, Features, Politics, Local News) with which each team 15 member is associated, the outlet(s) with which each team member is associated, and buttons 208 and 210 for viewing the profile and schedule of each team member. Control Tower 20 can be configured to display other details about the team on the Team page 206.

The list of displayed team members may be filtered using the drop down menus 46 20 provided at the top of the Team page 206. This list may be filtered by, for example, area, newsroom, department, outlet, content format, country, role, or the team may be viewed alphabetically. New team members may be added by clicking on the New Team Member button (not shown) provided at the bottom of the page 206.

25 By clicking on the Team Availability Calendar button 212 provided at the top of the Team page 206, the Team Availability Calendar page 214 shown in Figure 46b is displayed. The Team Availability Calender page 214 displays a list of team members and their interviews, meetings and appointments etc. Holidays or other scheduling information may also be displayed by clicking on the View button 50 associated with each team member in order to 30 enable editors to see who is "Busy", "Out of the Office", or "Available". A team member may be deleted from the team availability calendar by clicking on the relevant Delete button 64 provided.

The team member list is filterable using drop down menus 46 provided at the top of the page 214. The list may be filterable according to newsroom, department, event type, outlet, date or date range etc. This feature enables editorial managers and administrators to

5   manage collective or department-specific appointments and meetings, and enables personnel managers to create staff schedules, administer holidays, and record sick days and overtime.

Users may also be provided with their own calendars (MyCalendar) which they can use to

10 ... schedule appointments/days off etc. Once the user 24 has added an appointment using the MyCalendar function, this information may be used to dynamically updated a central administrative calendar.

Resources

15

The Resources function may be used by the administrator to manage the organising and booking of shared resources such as cameras, laptops and other equipment, or editing suites, meeting rooms etc. By clicking on the Resources button 164j, the Resources page 216 shown in Figure 47a is displayed. This page 216 shows a list of available resources,

20   and buttons (not shown) for booking and deleting each resource. The list of displayed resources may be filtered using the drop down menus 46 provided at the top of the page. A user 24 may send a request for a newsroom resource by choosing from the list of displayed resources, and by clicking on a Calendar button (not shown) which displays a popup calendar so that the user may click on the date(s) the resource is required. The request is

25   then sent to the administrator to book the resource. The administrator views the resource request and may approve or reject the request. The ability to configure the resources function to specify who receives and approves the requests may also be provided.

New resources may be added by clicking on the New Resource button 218 provided at the

30   bottom of the page 216. When the Booking button (not shown) for the canon camera is clicked, the Bookings page 220 of Figure 47b is displayed. This page 220 shows the resource, the story (or context) for which the resource has already been booked, the

booking time, the person who has booked the resource, and the status of the booking (e.g. booked, requested). Edit and delete buttons 70 and 64 are also provided for respectively editing and deleting each booking. An Add Booking button 224 is also provided for adding a booking.

5

Settings

Control Tower 20 is customisable in accordance with a user's preference using the settings function. The settings section could have the following subsections:

10.   1) Messaging – as described above, users may specify how they are notified according to the priority given to a message.

2) Languages – users may be able to select from a number of different languages from the Settings page. Selecting a language from this page could automatically update the Control Tower GUI and provide a help function in the selected language.

15   3) Auto-archive – This would allow users to adjust their personal archive settings to determine the length of time allowed to elapse before items are automatically archived.

4) Default view – This would allow users to set default views. For example, a user may only want to view stories which are due for publication in the next seven days.

20   5) Time Zone – This would allow users to specify the default time setting.

6) MyProfile – Users could modify their personal contact details using this function.

The Control Tower GUI can be configured to differentiate between "My" items (i.e.

25   personal items belonging to a user), and "All" items (i.e. all other items that a user has permission to see). Three types of objects may appear in the "My" space:

1) Everything a user has created (i.e. by virtue of being specified as creator);

2) Everything that a user is associated with (i.e. by virtue of being specified as a team member, pilot or assignee); and

30   3) Objects a user explicitly wants to appear in the My section (e.g. often-used contacts, other team members).

In the third case, an Add To My Items button could be provided next to each contact etc so that the user only has to click the relevant button to add that particular object to their My area (assuming they have been granted permission to do this, of course).

Administration

By clicking on the Administration button 1641 of the toolbar 164, the Administration page 222 shown in Figure 48 is displayed. It can be seen from this page 222 that the management of newsrooms, departments, outlets, users, and categories can be carried out in the manner described above. This page 222 also enables resources categories to be assigned/edited etc, and personal event types and event types to be assigned/edited etc. For example, an event type could be specified as major international event, home event, sporting event etc. This provides an additional function to aid management of an organisation. Assets can also be managed from this page 222. For example, asset formats may be assigned/edited, and asset statuses and classifications may also be defined.

Other features of the system

Time & Personnel Management

As described above, Control Tower 20 may include calendar tools. Such tools enable the recording of appointments and newsroom conference activities, staff holidays and work schedules, as well as equipment sharing, meeting room booking etc. This feature of the system provides the following important functions:

- To alert/remind users of important events/appointments (including contact reminders for news sources/contacts);
- To enable editors to track journalist activity and identify times/dates when a journalist is available or unavailable for a story.
- To enable resource sharing/scheduling;
- To show tasks, deadlines and appointments such as interview dates, conferences, meetings, and news events; and
- To enable administrators to plan staff work schedules.

Tools enabling personnel management are also provided. A tool for scheduling newsroom staff for the working week, to record hours worked, overtime, holidays, and work related travel can also be provided. A list of staff associated with particular newsrooms and departments is also available to view.

5

Management Reports

Control Tower 20 provides an optional management report function which enables Chief Editors (or other authorised users) to export/run reports to obtain, for example, the

10 following information:

- Percentage of resources (i.e. journalists) devoted to a particular story
- Number of assignments related to a story
- Percentage of overall assignments related to a story
- Number of journalists devoted to each topic
15 - Number of outlets running the topic
- Number of assignments submitted past deadline
- Number of assignments undertaken by one particular journalist
- Number of holidays taken by one journalist
- List of all foreign assignments
20 - Average delay between acceptance and delivery of an assignment for a specific user
- Average delay between the issuing of an assignment and the confirmation for a specific user

These reports are adjustable for all outlets/all programs/editions, and may include reports
25 for all outlets, for example, or only reports for a single section of one edition of an outlet, or even just a report for one staff member.

Managerial staff members can be granted access to the management reporting feature. They can click a button in their Navigation bar (or other feature, such as a menu) entitled
30 "Reports", and can be presented with a page similar to the Advanced search functionality. The information he/she has selected can be exported to an Excel Spreadsheet and the user can then manipulate the information externally.

Integration with other systems/software

Control Tower 20 can be configured to communicate with other editorial systems and tools to avoid onerous data entry. This is important, as Control Tower 20 is not a pure content management tool. There are a number of ways of integrating Control Tower 20 with another editorial system:

1) At the data storage facility level (i.e. providing a shared data store 22);

2) Accessing Control Tower 20 via another editorial system (via a button, for example); or

3) Complete integration of both systems.

Links to external applications such as Microsoft Word or Adobe Photoshop could also be provided. A content repository could also be provided for storing the final content of a story and automatically sending it to a production system when it has been approved for publication. As mentioned previously, assets created in Control Tower 20 can be associated with meta-data. This facilitates the sharing of asset data between different systems to facilitate file searching etc. Control Tower 20 could also be configured to include XML or other suitable mark-up language.

Control Tower 20 could also be integrated with external newsfeeds (such as Rapid Browser), wire trackers, etc. This would enable users to locate news items and add them to the system 20.

Control Tower 20 could also be configured to store freelance content material. It could also be configured to allow editor to view journalists' profiles, commission articles, manage the commissioning process, and to handle syndication and rights issues automatically. For example, Figure 49a illustrates a page 224 providing a search facility of searching for suitable freelance journalists according to their geographical location and/or expertise. Figure 49b shows a page 226 for article management. Using this page 226, a user 24 may search the data store 22 for articles of interest by keyword, article type, region, story type, category, filing location, and language. Editors may even be able to add their own personal list of freelancers to the system to manage all external sources in one place.

Figure 28 is a schematic representation of a proposed freelance and rights management module. The key features of this module are summarised by the four major sections: assignment (task) management (interacts directly with Control Tower 20), talent resources

5   (i.e. journalists and external contacts/sources), ordering and delivery (manages the negotiation process between editor and journalist, as well as administrative details), and content assets (managing and archiving content, including copyright management of material acquired from freelancers).

- 10-   Control Tower 20 could also provide functionality for filing (and checking) expense claims, the control of payments to freelance journalists, receipt of articles, copyright status of content, and syndication management.

Having described particular preferred embodiments of the present invention, it is to be

15   appreciated that the embodiments in question are exemplary only and that variations and modifications such as will occur to those possessed of the appropriate knowledge and skills may be made without departure from the spirit and scope of the invention as set forth in the appended claims. For example, although two GUIs have been described, Control Tower 20 may be implemented in any other suitable GUI which may be designed according to the

20   organisation in which Control Tower is installed. Control Tower 20 may also be configured to implement all of the functions described herein, or only a subset of the functions, again depending on the organisation in which Control Tower 20 is installed, and even according to the budget the organisation has been allocated. There is also no requirement that the GUI be Web based.

25

Access to Control Tower 20 may be provided using a logon and password. Additional security may be provided from providing a local installation only, or via the use of firewalls and SSL technology.

30   Finally, although the system described herein has been discussed in relation to a multi-media system for document production, it may be used in any other suitable field. It could be used, for example, in materials management for the construction of a vehicle. If the

system were to be used in a factory where vehicles are produced, the processor could be a robot or other machine, and the management view would enable the shift manager to view each stages of production of the vehicle, and to allocate resources for the production of the vehicle. Such a system would also be of particular benefit in flexible manufacturing to

5   ensure, for example, that all processors are allocated a task.